

ATTACHMENT 1

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matters of:

Ameritech Corporation Telephone Operating
Companies' Continuing Property Records
Audit

Bell Atlantic (North) Telephone Companies'
Continuing Property Records Audit

Bell Atlantic (South) Telephone Companies'
Continuing Property Records Audit

BellSouth Telecommunications' Continuing
Property Records Audit

Pacific Bell and Nevada Bell Telephone
Companies' Continuing Property Records
Audit

Southwestern Bell Telephone Company's
Continuing Property Records Audit

US West Telephone Companies' Continuing
Property Records Audit

CC Docket No. 99-117

ASD File No. 99-22

**REPLY AFFIDAVIT OF
ROBERT M. BELL, Ph.D.**

October 25, 1999

I. QUALIFICATIONS AND CREDENTIALS

1. My name is Robert M. Bell. I submitted an affidavit on statistical issues that AT&T included in its September 23 initial comments in this docket. A complete statement of my qualifications appears in that affidavit.

II. INTRODUCTION AND SUMMARY

2. In my initial affidavit, I explained why the general statistical methods and findings of the Staff's audits of the regional Bell operating companies' ("RBOCs") continuing property records ("CPRs") are sound. The overall statistical design of the audits is scientifically rigorous and appropriate for estimating both the proportion and value of missing hard-wired central office equipment ("HWCOE") recorded in the CPRs of the RBOCs. The Staff's application of these statistical procedures produced valid point estimates for both the proportion of missing HWCOE in the RBOC's CPRs and the total cost of this missing equipment. These point estimates provide the best statistical determination of the actual proportion and value of missing HWCOE and, therefore, are the most appropriate numbers upon which to base corrective action with regard to missing equipment.

3. I also explained why the Commission should give no weight to RBOCs' earlier criticisms of the statistical design and resulting point estimates produced from the Commission Staff's audits. In many cases, those criticisms are factually incorrect. In all other cases, the likely impact of the concerns raised by the RBOCs are most likely small, if any, and typically no more likely to disfavor than to favor the RBOCs. Notably, the RBOCs have failed to show that any of the alleged statistical errors have any material significance.

4. It is important to point out that my review of the statistical procedures considers only the statistical aspects of the design, data analysis, and inference. Professor Loebbecke's affidavit discusses the accuracy of audit scoring and classification decisions; for the present analysis, I assume that those Staff decisions were executed accurately.

5. My present affidavit responds to the statistical criticisms appearing in the RBOCs' initial comments. Because the RBOCs have refused to provide access to most of the data and work papers needed to verify their statistical claims, I cannot calculate precise quantitative effects of alternative statistical designs. I do, however, provide qualitative statements on their potential effects based upon my experience using these and similar statistical methods in my capacity as a statistician.

III. THE SAMPLE DESIGN USED BY THE STAFF WAS APPROPRIATE AND PRODUCED VALID ESTIMATES OF THE PROPORTION AND VALUE OF MISSING HWCOE

6. In their September 23 initial comments, the RBOCs reiterate their previous claims that the sample design used by the Staff produced invalid estimates of the proportion and value of HWCOE listed in the RBOCs' CPRs, but missing from their central offices.¹ These contentions are false, largely for the reasons explained in my initial affidavit.

¹ Notice of Inquiry, *Comments of BellSouth* p. 13, CC Docket No. 99-117, ASD File No. 99-22 (Sept. 23, 1999) ("BellSouth Comments"); Notice of Inquiry, *Comments of Bell Atlantic* p. 3, CC Docket No. 99-117, ASD File No. 99-22 (Sept. 23, 1999) ("Bell Atlantic Comments"); Notice of Inquiry, *Comments of Southwestern Bell Telephone Company, Pacific Bell and Nevada Bell* pp. 7-9, CC Docket No. 99-117, ASD File No. 99-22 (Sept. 23, 1999) ("SBC Comments"); Notice of Inquiry, *Comments of US WEST* pp. 5-8, CC Docket No. 99-117, ASD File No. 99-22 (Sept. 23, 1999) ("US WEST Comments"); Notice of Inquiry, *Comments of Ameritech* p. 10, CC Docket No. 99-117, ASD File No. 99-22 (Sept. 23, 1999) ("Ameritech Comments").

While there is no such thing as a “perfect” sample design for the multiple purposes of this audit, the design used by the Staff yielded valid estimates for both the proportion and dollar value of missing HWCoe.

A. Two-Stage Stratified Designs are Well Established, Scientifically Rigorous, and Make Efficient Use of Limited Resources

7. As explained in my initial affidavit (¶¶ 9-17) two-stage stratified designs are common, scientifically rigorous, and, in many ways, superior to other sampling methods. In particular, the two-stage stratified design used in this audit allowed Staff to collect more data than could have been collected for the same cost using simple random sampling. As a result, the Staff was able to make more precise determinations of the proportion and dollar value of items listed in the RBOCs’ CPRs, but missing from their central offices.

8. The cost-efficiency advantage of two-stage stratified designs has led to their common use in other important government surveys. Examples include: the National Health and Nutrition Examination Survey III, a nationwide stratified, multi-stage probability sample of approximately 34,000 people aged 2 months and above; and High School and Beyond, a longitudinal study begun in 1980 of 58,000 high school sophomores and seniors from 1015 high schools.²

² See Ezzati, T.M. et al., *Sample Design: Third National Health and Nutrition Examination Survey*, National Center for Health Statistics, Vital and Health Statistics Series, Vol 2, Number 113, Hyattsville, MD, 1992; Chapter 5 of Bryk, A.S. and S.W. Raudenbush, *Hierarchical Linear Models*, Sage, Newbury Park, CA, 1992.

9. Ameritech asserts that the Staff “used a cluster sample with an inaccurate variance calculation and not a two-staged stratified sampling technique.”³ This contention betrays a misunderstanding of the statistical design used by the Staff. Clustering and stratification are complementary, not mutually exclusive. In fact, the Staff used both stratification and cluster sampling, a term which is used almost synonymously with multi-stage sampling. Also, as I discuss below, the Staff did use an accurate variance estimator.

10. The other RBOCs concede that the Staff’s use of a two-stage stratified design was appropriate for measuring the proportion of HWCOE listed in the RBOCs’ CPRs, but missing from their central offices.⁴

B. The Statistical Design was Proper for Determining the Dollar Value of Missing Equipment

11. The RBOCs continue to insist that the primary design of the audit was to measure the proportion of items missing and, therefore, the estimates of the dollar value of missing equipment are unreliable,⁵ going so far as to reject any such use: “Rather, the sampling design could only be used for measuring items on the CPR not found and not the dollar value of any missing items.” As I explained in my previous affidavit (¶¶ 16-17) this contention is incorrect in both theory and reality. First and fundamentally, the primary design goal of a

³ Ameritech Comments, p. 11.

⁴ See, e.g., BellSouth Comments, Exh. 3 p. 3 (“[t]he audit sampling plan was designed to produce a precise estimate of the proportion [of missing HWCOE].”); *Response To Audit Draft Report Findings Related to Audit of Continuing Property Records of Bell Atlantic*, Exh. 2 p. 3, CC Docket No. 99-117 (Jan. 11, 1999) (“Bell Atlantic Response”) (same).

⁵ SBC Comments p. 2; *Id.*, Exh. A p. 4; US WEST pp. 5-6; *Id.*, Att. 1 pp. 2-3; *Id.*, Att. 2 p. 8; Bell Atlantic Comments p. 3; BellSouth Comments p. 13-14.

sample does nothing to invalidate its use for other purposes. Here, the sample design was optimal for determining the proportion of missing HWCOE. In addition, the sample provided the Staff with the necessary information to estimate the dollar value of HWCOE listed in the RBOCs' CPRs, but missing from their central offices.

12. While the variance for estimates of the total cost of missing HWCOE could have been reduced using an alternative design that over-sampled high-cost items, doing so would have increased the variance of the estimated proportion of missing items. No sample design can perform optimally for both questions. The key point is that the sample design used by the Staff produced essentially unbiased point estimates for both the percentage of missing items and the total dollar value of missing investment. Oversampling high-cost items would have no impact on the expected value of either estimate.

13. Furthermore, the RBOCs contend that the Staff's sample design and analysis assumes that inexpensive and expensive line items were equally likely to be missing, resulting in biased estimates.⁶ This contention is simply incorrect. Neither the sample design nor the estimators assume that the probability that a line item is missing is unrelated to its cost. In fact, the estimated cost of missing HWCOE is based on the actual cost of equipment that was determined to be missing in the audit. Therefore, to the extent that the audit revealed expensive equipment to be less likely to be missing, the cost estimates reflect that finding.

⁶ See, e.g., US WEST Comments p. 12 ("the audit appears to assume that if US WEST loses . . . [an expensive item] it is just as likely to lose . . . [an inexpensive item]"); Ameritech Comments, Att. A p. 8.

C. Point Estimates Computed by the Staff are Valid and Accurate

14. The RBOCs do not deny that the Staff correctly calculated the point estimates for the proportion and value of missing HWCOE. Instead, the RBOCs argue that estimates used by the Staff should be disregarded because they are potentially mathematically biased.⁷ This contention is contrary to basic statistical theory and methods, and is without empirical support.

15. The FCC analysis used standard ratio estimators to estimate the proportion and value of missing HWCOE. See William G. Cochran, *Sampling Techniques* 292 (3rd ed. 1997) p. 303 (“Cochran”) (equation 11.25). Although these estimators are not mathematically unbiased, the magnitude of the bias should be negligible. Ernst & Young, one of the RBOCs’ accountants, has conceded this fact.⁸

16. More importantly, it is an accepted practice among statisticians to use estimates with a certain amount of bias to obtain more accurate estimates—*i.e.*, with lower mean squared error.⁹ For this reason, the estimators used by the Staff to determine the proportion and value of missing HWCOE are appropriate. In any event there is no evidence to suggest that the negligible bias should be in a particular direction. Consequently, the estimator used by the Staff

⁷ See, e.g., Ameritech Comments pp. 10-11; SBC Comments p. 6; *Id.*, Exh. A pp. 12-16; BellSouth Comments pp. 14; *Id.*, Exh. 3 pp. 4-5; Bell Atlantic p. 3; Ex Parte Letter From Arthur Andersen, PricewaterhouseCoopers, and Ernst & Young p. 1, filed Sept. 22, 1999 (“Joint Letter”).

⁸ See, e.g., BellSouth Comments, Exh. 3 p. 3 (“[t]he actual bias appears to be negligible”).

⁹ This is basic statistical theory. See, e.g., Thomas H. Wonnacott & Ronald J. Wonnacott, *Introductory Statistics For Business Economics* p. 240 (4th ed. 1990) (“because it combines the two attractive properties of small bias and small variance, the concept of minimum [mean squared error] . . . is the single most important criterion for judging between estimators.”).

is just as likely to have underestimated as it is to have overestimated the proportion and dollar value of missing HWCOE.

17. In addition, the RBOCs and their outside auditors argue that the Staff incorrectly estimated the variance of the point estimates because it failed to account for the “cluster” sampling design.¹⁰ In fact, the Staff correctly applied standard methods to account for the complex sample design in order to obtain the most accurate variance estimates. The Staff’s formulas directly incorporate estimates of office-level variation into the estimated standard errors for the proportion and dollar value of missing equipment. The Staff thereby avoided any assumption that results for line items from the same central offices are independent. These formulas, described in the audit reports, closely approximate equation 11.30 of Cochran, *supra*, generalized to samples with multiple strata.

D. Errors in the Staff’s Confidence Intervals Produced Upper Confidence Limits that were Too Low and Lower Confidence Limits that may have been Too Low

18. As I explain below in III.E., the point estimates that were computed by the Staff are the best available estimates of the proportion and value of missing HWCOE. For this reason, the range of the confidence intervals around the point estimates are not useful for determining the most likely proportion and value of missing HWCOE listed in the RBOCs’ CPRs. Nevertheless, I now discuss the methods for computing the confidence intervals because the RBOCs provide misleading information about the sensitivity of those confidence intervals to corrections in the Staff’s calculations.

¹⁰ See, e.g., Ameritech Comments p. 11.

19. The RBOCs and their outside auditors correctly identify one error made by the Staff in calculating the confidence intervals—improper degrees of freedom for selection of the multiplier of the estimated standard error. In fact, the Staff also erred by using confidence intervals that were symmetric around the point estimates. This error caused both lower and upper confidence limits to be *lower* than they otherwise should have been.

20. For two-stage samples, the degrees-of-freedom available for estimating standard errors is much less than the number of secondary sampling units (line items). Confidence intervals should use a standard error multiplier based on critical values of a t-distribution with these appropriate degrees of freedom. The standard formula for computing degrees-of-freedom for two-stage stratified designs is $(n-h)$, where n is the number of primary sampling units and h is the number of strata. For the audit studies, this formula would give values of about 20 to 24 degrees of freedom. As Ernst & Young points out, a smaller number of degrees of freedom may be more appropriate. Even at 10 degrees of freedom, 95% confidence intervals would be only 14 percent larger than reported by the Staff. This would result in the upper limit of the confidence intervals being *higher*, and the lower limit being lower.

21. The Staff improperly used a symmetry approximation to create confidence intervals. Symmetric confidence intervals assume that the standard error of an estimated parameter does not vary with the true value of the parameter. When that assumption is true, a symmetric confidence interval works fine (i.e., for a two-sided 95% confidence interval, there is a 2.5% probability that the true value of the parameter falls below the confidence interval *and* a 2.5% probability that the true value lies above the confidence interval). However, for certain parameters, like a proportion that is less than one-half, the standard error grows with the true

value. In such a case, a symmetric interval assumes an excessively large standard error at the lower end, and a too-small standard error at the upper end. This is exactly such a case because both the proportion and value of missing assets are less than half of their totals in the HWCOE CPR. Consequently, a proper confidence interval in a case like this must be asymmetric, with higher limits at each end than implied by the naive symmetric interval.

22. There are very accurate methods to correct for this bias (*see* Chapter 14 of Efron and Tibshirani, *An Introduction to the Bootstrap*, Chapman and Hall, New York, 1993). I cannot apply these methods, of course, without access to the audit data. For the proportion of missing equipment, the proper correction for asymmetry may well be small. In contrast, I expect a strong association between the true dollar amounts of missing equipment and the corresponding standard errors—leading to substantial asymmetry corrections for those confidence intervals. If so, proper confidence intervals would have much higher values at both limits than would naïve symmetric intervals.

23. It appears that Bell Atlantic recognized the potential for asymmetry, but applied that knowledge incorrectly. I cannot verify Bell Atlantic's exact procedure because it reports findings only for lower confidence limits. Bell Atlantic performs a simulation (for total in-place cost of equipment) which it states determines that the tail containing *negative* t-scores is much heavier than in a normal distribution.¹¹ But Bell Atlantic mistakenly interprets this result to suggest the need for a much higher multiplier than the standard normal or t-distribution multiplier to compute *lower* confidence limits. The correct interpretation of this result is exactly

¹¹ Review of the Bell Atlantic North and South CPR Statistical Audit Plan, App A, pp. 10-18.

the reverse: the multiplier expansion should apply to the *upper* confidence limit instead. This is because large *negative* t-scores occur when the sample mean is much *less than* the population mean. Inference from the simulation about the correct multiplier for *lower* confidence limits should be derived from the distribution of *positive* t-scores. The simulation indicates that “the other tail [positive t-scores] is similar to a normal for the South, but much thinner than a normal for the North.” Consequently, Bell Atlantic’s simulation actually adjusts the lower confidence limits in the *wrong direction*.

24. The nonsensical conclusions that can be drawn from inappropriate use of confidence intervals are illustrated by Bell Atlantic’s statement that “[i]n general, when Bell Atlantic scores are used, the one-sided lower 95% and 99% bounds for in-place cost of non-locatable items are either below zero, or are a minute fraction of the Bell Atlantic company’s total investment,” Ernst & Young App. A, p. 1. This proposition is obviously false. Even Bell Atlantic concedes that some of the sampled CPR items were missing. If the population of non-locatable items in the sample is greater than zero, the population of non-locatable items in the entire universe of Bell Atlantic HWCOE must be at least as great.

25. Without access to the data, I cannot provide quantitative estimates of the cumulative impact on the confidence limits of correcting for the two-stage sample design (proper degrees of freedom) and for the asymmetry of appropriate confidence limits. However, the direction of these corrections is clear for the upper limits of confidence intervals: the upper limits should be *higher* than those reported by the FCC staff. In contrast, I cannot say definitively whether the lower limits of the confidence intervals should rise or fall, because the two separate corrections work in opposite directions. The correction for asymmetry might well exceed the

correction for the two-stage design, in which case both confidence limits should be higher than those reported by the Staff.

E. The Point Estimates are the Most Accurate Estimates of the Proportion and Value of Missing HWCOE

26. The most relevant statistics for adjusting the RBOCs' CPRs are the point estimates for the missing HWCOE, not the upper or lower limits of confidence intervals. The reason statisticians calculate point estimates is precisely because point estimates are designed to provide the best approximation of the true value.¹² Therefore the RBOCs' suggestion that the lower bound of the confidence interval is the best estimate of missing HWCOE is in complete disregard of standard statistical theory and practice.

27. Moreover, the RBOCs' claim that the lower bound is just as good an estimate as the point estimate, because "no single value within these wide ranges is any more likely to be correct than any other,"¹³ is contrary to basic statistical theory. Estimators of the type employed by the Staff tend to have approximately normal (bell-shaped) distributions, centered at the true value. This implies that the true parameter value is more likely to be close to the point estimate than to any other points within the confidence interval. Indeed, because of the shape of the probability density function for a normal distribution, the ends of a confidence interval are the values that are the *least* likely to be correct.

¹² This concept is elementary statistics. See, e.g., Wannacott, *supra*, pp. 231-52; Robert V. Hogg and Allen T. Craig, *Introduction to Mathematical Statistics* pp. 200-34 (4th ed. 1978); Alexander M. Mood, *Introduction to the Theory of Statistics* pp. 271-361 (3rd ed. 1974).

¹³ SBC Comments p. 8. See also *id.*, Exh. A p. 11; BellSouth Comments p. 17; *Id.*, Exh. 3 p. 8.

28. The RBOCs' position is also illogical. It is logical that a number towards the middle of the range (the point estimate) minimizes the potential for error. Using either the lower or upper bound of the confidence interval maximizes the potential for great error (*i.e.*, error is maximized if the true value turns out to be near the other end of the confidence interval).

F. Use of a 99 Percent Instead of a 90 Or 95 Percent Confidence Interval is Unwarranted

29. The RBOCs contend that a 99% confidence level rather than the Staff's 95% confidence level is necessary to "balance the bias that is inherent in the audit."¹⁴ This claim is unfounded both in fact and statistical theory. As discussed in AT&T's Reply Comments (pp. 4-7), there is no significant bias in the Staff's estimates. Hence, no "balancing" is necessary. In any event, adopting overbroad confidence intervals is not a proper response to bias. Confidence intervals account only for the likely size of *sampling* error; they bear no relevance to bias, a form of *nonsampling* error. Thus, even if there were significant bias in the Staff's estimates—and I have seen no evidence of such bias—extremely wide confidence intervals would not be the proper cure.

G. The Practical Constraints on the Sampled Offices Had Little if Any Effect on the Estimates

30. The RBOCs continue to insist that the Staff's estimates of missing HWCOE are biased because the Staff excluded from the audit central offices with fewer than

¹⁴ See, *e.g.*, SBC Comments p. 8; See also BellSouth Comments p. 17.

100 line items and central offices that were impractical to visit.¹⁵ Likewise, they argue that the addition of a BellSouth office in North Carolina to the BellSouth audit sample invalidates the audit of every RBOC.¹⁶

31. The Staff's exclusion of small offices from the audit sample cannot injure the RBOCs, for the Staff excluded those offices from the population for which the Staff estimated the total dollar investment of missing HWCOE (equation 19 in Appendix A of the Audit report for Bell Atlantic South). In other words, the value of items that may be missing from small offices is *not* included in the Staff's estimate of the total value of missing equipment. Thus, exclusion of small offices could only bias the Staff's estimates in a *downward* direction—*i.e.*, underestimate the total value of missing HWCOE.

32. In addition to excluding small central offices, the Staff design found substitute sites for offices where “the location initially selected was impractical to audit, because the equipment items were spread over the territory served by the central office in huts or cabinets or on customer premises.”¹⁷ Theoretically, this practical consideration could have introduced bias into the estimates only if the HWCOE in offices that met this criterion were systematically more or less likely to be missing. However, there is no evidence, either from the RBOCs or otherwise, that demonstrates that the remoteness of an office correlates with the likelihood that items in its HWCOE CPRs are missing.

¹⁵ See, e.g., BellSouth Comments p. 15; US WEST Comments p. 10; SBC Comments p. 9; Ameritech p. 11. In fact, for the Bell Atlantic North/NYNEX and Bell Atlantic South, the Staff auditors included offices containing fewer than 100 CPR items.

¹⁶ See, e.g., BellSouth Comments p. 15.

¹⁷ See, e.g., Bell Atlantic Response, App. B p. 7.

33. Even if such a correlation existed, the size of any bias would depend on the frequency of such substitutions. To the extent that only a few of the RBOCs' central offices were excluded because they were impractical to audit, any potential for bias is negligible. And, in any event, the direction of the bias is indeterminable.

34. The inclusion of the North Carolina office of BellSouth is also unimportant to the overall usefulness of the Staff's estimates of missing HWCOE. First and foremost, including the North Carolina office affects only the estimates of missing CPR items for the BellSouth audit. The BellSouth sample and results were not pooled or combined with the samples for the other RBOCs.

35. Nor is there any reason to believe that the post-hoc inclusion of the North Carolina central office introduced any significant bias into the Staff's estimates of missing HWCOE for BellSouth itself. There is no evidence that the CPR items in the North Carolina central offices were more or less accurately recorded than the other central offices.

36. In any event, BellSouth could readily have determined the effect of including the North Carolina office by performing a sensitivity analysis where that office was excluded from the sample. BellSouth has provided no results from any such analysis. Accordingly, the inference is warranted that there is no material effect on Staff's estimate of missing BellSouth HWCOE.

IV. CONCLUSIONS

37. Almost any real-world data collection and subsequent data analysis can be criticized after the fact by offering a different sample design or theorizing how the estimates

might be biased. The Staff audit is no exception. The audit used a scientifically valid sample design. When faced with challenges in the design and data collection, the Staff made reasonable decisions. The existence of alternative designs does not invalidate inferences that should be drawn from the design that was implemented.

38. The Staff estimates of the frequency and cost of missing equipment are based on good statistical practice and have little, if any, demonstrated bias. Most of the criticisms offered by the RBOCs are only theoretical—merely suggesting that certain biases could conceivably exist. The RBOCs generally offered no evidence that these potential biases are large, or even that they result in an overestimate, rather than an underestimate, of the quantity of missing equipment. In the end, most of the RBOC-offered alternative analyses arrive at the same conclusion as the FCC's audits—that significant amounts of RBOC hard-wired central office equipment were missing.

39. In conclusion, the finding of the FCC's audits—that significant amounts of RBOC hard-wired central office equipment appear to be missing—is scientifically valid. The FCC point estimates of these quantities provide the best values to use in calculating remedies for these shortfalls.

REPLY AFFIDAVIT OF ROBERT M. BELL
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References

Cochran, W.G., *Sampling Techniques* (3rd Edition), John Wiley & Sons, Inc., New York, 1977.

Efron, B., and Tibshirani, R., *An Introduction to the Bootstrap*, Chapman and Hall, New York, 1993.

AFFIDAVIT OF ROBERT M. BELL
DOCKET NO. 99-117

DECLARATION

I, Robert M. Bell, declare under penalty of perjury that the foregoing statements
are true and correct.

Robert Bell

October 25, 1999

MARGO BAKER
NOTARY PUBLIC OF NEW JERSEY
Commission Expires 3/10/2000

M. Baker

REPLY AFFIDAVIT OF JAMES K. LOEBBECKE
DOCKET NO. 99-117

ATTACHMENT 2

**Before the
FEDERAL COMMUNICATIONS COMMISSION
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**REPLY AFFIDAVIT OF
JAMES K. LOEBBECKE, CPA**

*****PUBLIC VERSION*****

October 25, 1999

I. INTRODUCTION

1. My name is James K. Loebbecke. I submitted an affidavit for AT&T in this docket on September 23, 1999. A complete description of my qualifications appears in Attachment 1 to that affidavit.

II. PURPOSE OF AFFIDAVIT

2. The purpose of the present affidavit is to reply to certain of the criticisms the Regional Bell Operating Companies ("RBOCs") have made about the audit procedures used by the audit Staff in its analysis of the RBOCs' continuing property records ("CPRs"). As explained in my initial affidavit, the Staff's methodology and procedures were more than reasonable, and the Staff's results reliably indicate significant deficiencies in the CPR. The September 23 comments of the RBOCs and other parties provide no basis for a contrary conclusion.

3. The RBOCs' renewed challenges to the standards and procedures for scoring and rescoring the CPR entries checked by the auditors are as unfounded as the previous iterations of these claims. Any bias in the Staff's scoring and rescoring procedures was in the RBOCs' favor. For example, although the RBOCs received ample notice and time to prepare for the audits and the audit Staff remained at each central office until the RBOCs' own personnel agreed that missing items could not be found, the RBOCs were given *four* additional chances to provide credible evidence that the missing equipment had in fact been "found."

4. Second, when the RBOCs provided some evidence of an item's existence, but the evidence was less than fully persuasive, the Staff frequently scored the item as "unverified" rather than "not found," and thus created a large category of items for which accounting adjustments likely should have been recommended in the report, but were not.

5. Third, the RBOCs were asked to provide explanations and documentation showing that certain items classified as "unverified" or "not found" should have been classified as "found," but were not asked to provide documentation that would have allowed the Staff to conclude that certain items classified as "found" or "unverified" should have been classified as "not found." As a result, the vast majority of rescored items **[BEGIN BELL ATLANTIC PROPRIETARY]**

[END BELL ATLANTIC PROPRIETARY] were rescored in the RBOCs' favor.

6. The after-the-fact "rescoring" of the audits by the RBOCs' accounting firms is largely unverifiable, because most of the RBOCs have continued to withhold approval from the Commission to release the data needed by third parties to test and verify the propriety of most of the scoring changes advocated by the RBOCs. Moreover, what little data the RBOCs have produced make clear that the scoring changes proposed by the RBOCs' auditors are subject to question, as some items are facially incorrect. In any event, even the work done by the RBOCs' auditors indicates that items found missing by the Commission's audit staff were in fact missing.

III. THE RBOCS RECEIVED AMPLE NOTICE AND TIME TO PREPARE FOR THEIR AUDITS.

7. In my initial affidavit, I explained why the Staff's audit procedures, including the on-site inspection and off-site rescoring procedures, were reasonable in both planning and execution. The RBOCs received ample notice of and time to prepare for the audit, including the opportunity to line up any resources the RBOCs thought necessary to locate any items contained in the CPR. Initial Affidavit ¶ 6. The RBOCs' initial comments do not dispute this fact.

IV. THE STANDARDS AND PROCEDURES FOR INITIAL SCORING WERE REASONABLE.

8. As I also noted in my initial affidavit, the on-site inspections and scoring were both professional and fair to the RBOCs. *See* Initial Affidavit ¶ 6. The initial comments of the RBOCs and other parties also offer no legitimate challenge to the professionalism or fairness of the on-site inspections. *See, e.g.,* Ameritech Comments, Attachment A, pp. 8-9; Bell Atlantic Comments, p. 6; SBC Comments, p. 9.

9. There is no basis for the RBOCs' claims that the Staff's audit procedures were overly restrictive, or that the Staff failed to allot enough time to properly conduct its on-site inspections. *See, e.g.,* Ameritech Comments, Attachment A, pp. 8-9. The Staff and the RBOC's personnel jointly engaged in a search for the sample items. When the equipment was missing from the location specified in the CPR or when the CPR did not contain a specific equipment location, the Staff gave RBOC personnel an unlimited opportunity to locate the equipment elsewhere within the office. The Staff was

committed to staying at each central office location until the RBOC's own personnel agreed that the missing items could not be found and that a complete search for the sample items had been performed.

10. In addition, the Staff's on-site scoring system gave the RBOCs the benefit of the doubt by classifying a large number of items that could not be verified with certainty as "unverified" rather than "not found." The standard for classifying an item as "not found" was strict, while the standard for classifying an item as "unverified" was lenient. An item was considered "not found" only when, after an exhaustive search by both the auditors and the RBOCs' personnel, the sampled equipment could not be located anywhere in the central office. By contrast, an item was considered "unverified" if the auditor had some reason to believe, but was not certain, that an item had been located.

11. All of this on-site audit work was well-planned, supervised, and reviewed. The work paper documentation was clear, concise, consistent, and complete, and the audit supervisor reviewed the inventory forms upon completion of the on-site visit to ensure the accuracy and consistency of the findings.

V. THE STAFF'S RESCORING PROCEDURES WERE REASONABLE.

12. The RBOCs' criticisms of the Staff's rescoring procedures are also unfounded. *See, e.g.*, Ameritech Comments, pp. 12-19; Bell Atlantic Comments, pp. 4-8; BellSouth Comments, pp. 20-24; SBC Comments, pp. 16-27. The Staff gave the RBOCs

at least four post-inspection opportunities to provide persuasive evidence that the items scored as “not found” had subsequently been located.

13. The RBOCs’ claims that the Staff disregarded the RBOCs’ post-inspection submissions cannot be taken seriously. Except for Bell Atlantic, the RBOCs have refused to allow the Commission to release the source documentation that would enable third parties to determine whether particular items were properly scored. Bell Atlantic’s submissions indicate that the Staff rescored **[BEGIN BELL ATLANTIC PROPRIETARY]**

[END BELL ATLANTIC PROPRIETARY] *See* Initial Affidavit, Attachment 2.

14. The RBOCs’ claim that Staff should have rescored even more items is also unsupported by the record. *See, e.g.,* Ameritech Comments, Attachment A, p. 13. The Staff’s rescoring standard was not unduly stringent. As the Staff has explained, “[t]he basic standard that companies were required to meet in order to have an item re-scored was to provide adequate and convincing evidence that the facts were different than appeared at the time of the auditors’ on-site inspection.” Such “adequate and convincing evidence” included “relevant source documentation and engineering drawings.” For example, “[i]f the company provided original invoices showing that only 4 units had been installed and the equipment descriptions, dates of purchase, and costs stated on the

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invoices matched the information on the CPR, the auditors determined that the evidence was probative . . . and that a re-scoring . . . was warranted.”¹

15. Indeed, even when the RBOC failed to provide such source documentation, if the Staff was able to determine that “the recorded cost [in the CPR] fully appeared to support a lesser quantity than recorded, the auditors generally rescored the ‘not found’ designation.” Similarly, “[i]f the company . . . provided evidence (*e.g.*, an engineering drawing or a manufactured schematic) demonstrating that [an item could not be seen because it was embedded in another item], the auditor classified the item as ‘found’).” Likewise, an item originally scored as unverified “remained scored as ‘unverified’” even if *no* evidence was provided to support the RBOC’s claim that the item was embedded. Thus, contrary to the RBOCs’ assertions, they were able to obtain a rescoring of an item merely by submitting relevant supporting documentation and, as described above, a significant number of items were in fact rescored based on that documentation.

16. The documentation available to third parties indicates that items which the Staff continued to score as “unfound” generally either (i) accurately represent departures from the CPRs; or (ii) accurately represent items that were not found at the time of field

¹ Public Notice at 2, *The Accounting Safeguards Division Releases Information Concerning Audit Procedures For Considering Requests By The Regional Bell Operating Companies To Reclassify Or “Rescore” Filed Audit Findings Of Their Continuing Property Records*, DA 99-668 (Apr. 7, 1999) (“*Rescoring Report*”).

work and for which the RBOCs did not provide evidence that met the Staff's rescoring criteria. The Staff's *Rescoring Report* (at 2-4) demonstrates that the Staff rejected the RBOCs' documentation evidence only when, in the Staff's experienced professional judgment, the evidence did not provide a reasonable basis for rescoring the items. Specifically, the *Rescoring Report* indicates that the Staff rejected the RBOCs' documentation evidence when, for example, (i) the information on the invoices did not match the descriptions and/or the costs of the equipment listed in the CPRs; (ii) the RBOCs provided non-source documentation, such as internal documents, that were not contemporaneous with the equipment purchase or installation; (iii) the RBOCs provided invoices demonstrating only that an item had been purchased, with no additional proof that an interim removal or retirement had occurred; (iv) the RBOCs submitted evidence showing that a retirement or removal had occurred, but no further documentation or evidence that reflected dates of removal or authorizing signatures. As the Staff properly determined, "documentation without authorizing signatures or dates of removal is not considered adequate documentation." *Rescoring Report* at 4-5.

17. These rescoring criteria were entirely reasonable. The evidentiary standard for on-site inspections is direct observation—the most rigorous and reliable safeguard against contamination of account books with phantom costs. Consequently, for an item to be rescored as "found" from either "unfound" or "unverifiable," the Staff correctly required the RBOCs to provide rescoring explanations/documentation that was comprehensive, clear, and convincing; *i.e.*, evidence of competence approaching direct

observation. A lower standard would have undermined the accuracy and goals of the *on-site* audit.

18. In addition, the auditors were professionally obligated to exercise a high degree of skepticism in conducting these audits, and thus should not have been swayed by the RBOCs' rescoring evidence unless it was persuasive. Such skepticism was particularly appropriate here because the auditors had performed an exhaustive search for the sampled items during the on-site inspections, and thus should have been skeptical when the RBOCs claimed, post-inspection, to have located a significant number of items at those very locations.

19. The only RBOC to provide documentation specific enough to test the legitimacy of the RBOC's case for further rescoring is Bell Atlantic. Our inspection of unfound items supports the Staff's consistent review and treatment of that documentation.

Bell Atlantic claims that the Staff improperly rejected evidence that Bell Atlantic submitted in support of its rescoring requests for two kinds of items: "embedded" items and items with "dollar vs. quantity" discrepancies. *See, e.g.*, Bell Atlantic Comments, pp. 6-7. **[BEGIN BELL ATLANTIC PROPRIETARY]**

21.

[END BELL ATLANTIC PROPRIETARY]

22. The RBOCs' claim that the Staff applied its rescoring standards inconsistently (*see, e.g.*, Ameritech Comments at 15, 18-19; Bell Atlantic Comments at 7;

SBC Comments at 26 & Exh. B at 2) is also unsupported. My review of the available workpapers for Bell Atlantic reveals that the Staff's explanations for rejecting the rescoring of an item were detailed and specific. The explanations were consistent among those of like kind as well as with the audit Staff's published rescoring procedures.

23. The reasons provided by the Staff for not rescoring particular missing items include: **[BEGIN BELL ATLANTIC PROPRIETARY]**

24.

**[END BELL
ATLANTIC PROPRIETARY]**

25. The response of the audit Staff to all of these submissions was appropriate and internally consistent. Because the Staff had actually visited the central offices to observe the sampled items, and the items could not be located even with the help of

RBOC central office personnel, rescoring the items would be inappropriate unless the supporting documentation was adequate and convincing. Thus, if the support offered for rescoring was merely an explanation of a reason why the item was not found, or if documentation failed to tie the item to the central office in a precise manner, rescoring was properly rejected. This standard reflects the high level of professional skepticism that is expected of professional auditors. My observations indicate this position was maintained in a consistent manner across all of the items we examined.

26. Finally, the reasonableness of the Staff's rescoring criteria is confirmed by the rescoring reports of the RBOCs' own auditors. The reports of these auditors confirm that many of the items reported by the audit staff as missing were properly classified as missing. *See* ¶ 46, below.

VI. THE AUDITS COMPLIED WITH RELEVANT PROFESSIONAL STANDARDS.

27. Some of the RBOCs contend that the Staff's procedures violated GAAS. *See, e.g.,* Ameritech Comments, p. 13; Bell Atlantic Comments, pp. 3 and 5. As I explained in my previous affidavit, the Staff was not required to comply with GAAS, but generally complied with both GAAS and GAGAS standards as they apply to the Staff's audit. Although in some respects the Staff's procedures could have been improved through the expenditure of additional resources (which could be said of virtually any audit), the Staff's conclusion that a significant amount of equipment listed in the CPRs is

missing is nonetheless reliable. Indeed, as noted below, the accounting firm for two of the RBOCs has reached the same conclusion.

28. The RBOCs list several ways in which the Staff's procedures allegedly were inconsistent with GAAS. *See, e.g., Ameritech Comments at 13.* In my professional opinion, however, their complaints are largely without merit. For example, and contrary to the RBOCs' claims, the Staff did provide the RBOCs with sufficient guidance concerning the types of evidence the Staff would consider in making its rescoring decisions. The Staff repeatedly asked the RBOCs to provide *all* additional explanations and documentation they wanted the Staff to consider in potentially rescoring items, and the RBOCs had every incentive to submit whatever favorable information they could obtain. To my knowledge, there is no evidence in the record that the RBOCs held any pertinent information back.

29. The RBOCs also contend that the Staff violated GAAS by relying exclusively on physical inspection as the only competent evidential matter considered. As described above, that contention is incorrect. *See, e.g., Ameritech Comments at 13.* The Staff considered all of the RBOCs' post-inspection documentary submissions and performed a significant amount of rescoring based on that evidence, and the Staff's rescoring standard was perfectly reasonable.

30. Similarly, the RBOCs argue that the Staff violated GAAS by failing to account for the lapse of time between the date of the sampled report and the physical

verification. *Id.* That argument also is false. The Staff scored interim retirements as “found” to the extent the RBOCs were able to provide evidence showing that such retirements had in fact occurred in a logical time frame.

31. The RBOCs also claim that the Staff’s field audit procedures were limited and restricted. *Id.* My opinion of the Staff’s procedures is that they were professionally planned, well-executed, and very generous to the RBOCs. As described above, the auditors remained at each central office location until the RBOCs’ own personnel agreed that the missing items could not be found and that a exhaustive search for the sample items had been performed, and the Staff’s initial scoring during the on-site inspection was tilted in the RBOCs’ favor.

32. In a world of unlimited time and money, the Staff might have examined additional sources of information, such as corroborating testing of account balances or other financial statement accounts, and might have performed additional follow-up visits. In my opinion, however, the absence of these additional procedures does not significantly undermine the reliability of the Staff’s ultimate conclusion. Furthermore, follow-up inspections by the accounting firm for two of the RBOCs show that a significant amount of equipment is missing from the CPRs.

VII. REPORTS OF ACCOUNTING FIRMS

33. In a further effort to rehabilitate their CPR, the RBOCs have sponsored affidavits by several Big Six accounting firms that score some of the audited items more

favorably to the RBOCs than did the Commission's audit Staff. The affidavits of the RBOCs' accountants do not warrant adjustment to the Staff's findings.

34. Most of the RBOCs' rescoring analysis is unverifiable. Except for Ameritech, none of the RBOCs who have sponsored accountants' rescoring affidavits have disclosed (or allowed the Commission to disclose) to third parties any of the source documentation purportedly relied on by the accountants in reenacting the audits.

35. Although Ameritech attached a small amount of documentation to its comments, the attachments are both incomplete and often redacted to the point of uselessness. *See e.g.* Ameritech Comments Att. C at 3 (two black squares and illegibly faded writing); *id.* at 11 (same); *id.* at 28-29 (same); *id.* Att. G (mostly copies of illegible faxes). Likewise, the photographs included in the report are essentially uninformative. These gaps preclude third parties from determining the dollar impact of Arthur Andersen's reported findings, verifying Arthur Andersen's claim that CPR dollar amounts are correct even where quantities are incorrect, or judging other aspects of the quality of Arthur Andersen's work.

36. What limited documentation has been provided suggests that the discrepancies between the Staff's and the accounting firms' reports are based in large part on the accounting firms' inappropriately generous rescoring standards. For example, Ameritech's CPR report included a 1992 vintage piece of equipment. Ameritech Comments, Att. C, App A-4 at 10. The Staff could not find that piece of equipment

during the on-site office and, therefore, categorized it as “Not Found.” Arthur Andersen also failed to find the equipment, but assumed that a different (and much older) piece of equipment that performs the same task as the item listed in the CPR was the same equipment listed in the CPR description.

37. This assumption has two obvious flaws: (1) Arthur Andersen apparently did not search the CPR to verify whether the older piece of equipment was separately listed elsewhere in the CPR; and (2) even if the older piece of equipment was not listed elsewhere in the CPR, Ameritech’s failure to specify the actual vintage for the item could affect cost calculations, because newer items are more valuable and may depreciate faster.

38. Similarly, Arthur Andersen counted items as “found” based on equipment produced by a different manufacturer than listed in the CPR. *See, e.g.,* Ameritech Comments, Att. C, App. A-4 at 17. There is no evidence that Arthur Andersen confirmed that these different items were not already listed in the CPR, nor is there evidence that the items made by different manufacturers were identically valued or that they depreciated at the same rate. Arthur Andersen also accepted as “found” items that were purchased in 1989, but included a price quote from a 1996 price list. Ameritech Comments, Attachment C, App. A-4, p. 17; *id.*, Attachment E. Likewise, Arthur Andersen removed items from the “not found” category based on some items of similar description in the basement of the central office, although the corresponding entries in the CPR recorded the items as upstairs, on an entirely separate floor. Ameritech Comments Att. I. The

Staff properly counted these items as “not found” because there was no way to verify that the items in the basement were the ones listed in the CPR.

39. The Arthur Andersen report for Ameritech contains a number of other discrepancies and unexplained anomalies. For the last CPR asset claimed to be found by Arthur Andersen in Section I of its report, the CPR indicates that the central office contained only three items, yet Arthur Andersen claims to have found 22 items. This large discrepancy raises obvious questions about whether the CPR entry really corresponded to the asset, yet Arthur Andersen does not appear to have investigated the matter.

40. Section II of the Arthur Andersen report claims to have found five items in central offices at locations other than specified in the CPR. For three of the five items, however, the quantities “found” by Arthur Andersen differ significantly from those stated in the CPR. This discrepancy suggests that the CPR entries do not actually correspond with the assets found and, at a minimum, indicates a lack of reliability in the CPR. Arthur Andersen does not appear to have investigated the issue, and its report does not indicate why the Commission’s audit Staff declined to credit the Ameritech submissions.

41. Section III of the Arthur Andersen report asserts that a variety of assets, despite erroneous quantity descriptions in the CPR, were accurately valued in the CPR. Because Arthur Andersen has redacted the quantity and price data from its workpapers, this claim is impossible to evaluate.

42. Sections IV and V of the Arthur Andersen affidavit allege that certain scoring determinations by the audit Staff suffer from inconsistencies. Again, Ameritech has failed to provide enough information to determine why the Staff failed to rescore the challenged items, let alone establish that Staff was incorrect.

43. Section VI of the report lists items that Ameritech claims should receive partial credit because some items were found. This claim is unpersuasive. For each such asset, the number of items on the CPR for the entire central office is greater than the number of items located within the entire central office by Arthur Andersen, indicating that items are, in fact, missing. In most cases, this difference *exceeds* the number of items sampled by the Staff. Furthermore, the items Arthur Andersen found were not in the locations designated for the Staff's sampled items. Yet, Arthur Andersen chose to assert that the missing items should only "proportionately" apply to the Staff's sample.

44. In Section VII of its report for Ameritech, Arthur Andersen asserts that certain CPR entries should have been classified as "unverifiable" rather than missing. For none of these items, however, did the purported CPR entry specify a total quantity. Moreover, all but one of the CPR entries identified a different location than the location where Arthur Andersen purportedly found the physical items. Under the circumstances, classifying the items as "unverifiable" rather than missing would require a leap of faith that the audit Staff had no obligation to make.

45. In Section VIII of its report, Arthur Andersen asserts that the Staff's treatment of a substituted item affects the calculation of the statistical results. The Staff's classification of the item at issue, however, was "found." Since the Staff's extrapolation was made from "unfound" items only, Arthur Andersen's contention appears to be in error. Arthur Andersen also contends that portable items should have been excluded from the sample. One of the three cited items, however, had transfer paperwork associated with it, and the item was taken to the central office so that Arthur Andersen could inspect it. Thus, the existence of portable items appears to be supportable, and it is difficult to see why such sample items should be thrown out.

46. Finally, even with overly generous rescoring standards, the accountants retained by Bell Atlantic **[BEGIN BELL ATLANTIC PROPRIETARY]**

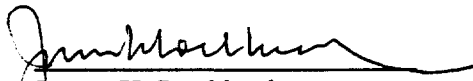
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BELL ATLANTIC PROPRIETARY]. According to a statement submitted by Arthur Andersen (Declaration of Carl R. Geppert, at 14), the Staff found that 140 of the sampled items were missing from Ameritech's central offices, and Arthur Andersen found that 108 of the sampled items were missing. FCC Report, p. 9; Ameritech Comments, Attachment A, p. 5; *id.*, Attachment 2, p. 1; BellSouth Comments, Exh. 5, p. 3. U S West also engaged Arthur Andersen to perform some revisitation procedures at three of its central offices. Of a sample of 20 items, only 7 items were completely or partially found. Thus, work done for two of the RBOCs for the specific purpose of refuting the Staff's work and conclusions confirms that the RBOCs were in significant non-compliance with the CPR requirements.

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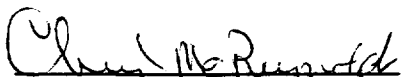
I declare under penalty of perjury that the foregoing is true and correct.

Executed on October 22, 1999.

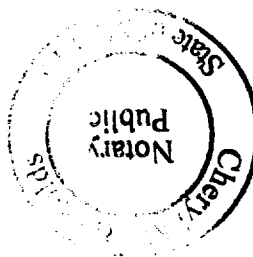

James K. Loebbecke

Sworn to and subscribed to before me

this 22 day of October, 1999

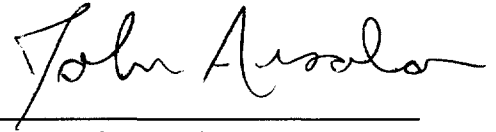

Notary Public

Commission Expires
April 27 2002



Certificate of Service

I, John Arsala, do hereby certify that I caused one copy of the foregoing Reply Comments of AT&T Corp. to be served by First Class mail on all parties on the attached service list, this 25th day of October, 1999.

A handwritten signature in cursive script, reading "John Arsala", written over a horizontal line.

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